REMARKS/ARGUMENTS

Claims 1 – 13, 17, 20, 23 – 33, 37, 40, 44-52, 54 and 55 remain in this application. No claims have been amended herein. No claims have been cancelled herein No new claims have been added.

1. Drawings

Applicants have not received a Form 948 indicating that the drawings submitted on September 22, 2003 in response to a Notice of Incomplete Reply have been accepted.

2. § 103 Rejections

The Examiner has rejected claims 1 – 7, 9 – 13, 17, 20, 23-33, 37, 40, 44 – 52, 54, and 55 under 35 U.S.C. § 103(a) as being unpatentable for over Oba (6,238,479).

The Examiner asserts that Oba teaches a method of growing a MgF_2, including placing a raw material in a chamber, subjecting the raw material to a scavenger to remove metal impurities, melting the raw material and then cooling the melt to obtain a crystal. The resulting crystal can then be cut and used in excimer lasers and other optical devices.

The Examiner then states that the difference between the applicants' claimed invention and Oba is that in the claimed invention applicants claim the use of a seed crystal and nonmetallically crushing the raw material. The Examiner concludes that it would have been obvious to one skilled in the art to determine "through routine experimentation the optimum, operable seed and crushing in the Oba reference in order to align the crystal in a set way as the use of a seed to align is well known in the art and to crush the material in order to increase surface area to allow for more reduction in impurities." Applicants traverse the rejection.

Oba, as stated in US 6,238,479, columns 7, line 6 to column 7, line 17, describes using a fluoride raw material, heating it to a temperature to dehydrate it, heating it to a temperature below its melting point in the presence of an oxygen scavenger to convert metal oxides to metal fluorides, and then heating and cooling the treated material to form a

block of metal fluoride material. As then stated in column 7, lines 7-17, the "upper end" of the block is then removed to eliminate impurities that may have concentrated therein. The steps of treating with a gas, melting and "removing the top portion of the fluoride block" can be repeated as many times as necessary to obtain a suitably purified block.

While the foregoing procedure may result in a block of fluoride material sufficiently pure for optical fluoride element purposes, the procedure is extremely time consuming and is also wasteful of fluoride material.

In contrast to Oba applicants offer a method of making metal fluoride crystals that avoid the wastefulness of Oba's method and result in a material suitable for optical lithographic elements. In applicants invention a solid fluoride precursor material is nonmetallically crushed in order to avoid contamination of the fluoride material with metallic impurities. After crushing the material is mixed with a scavenger, placed in a crucible with a selected seed crystal and used to grow a crystal suitable for use in lithographic systems. Applicants' method avoids Oba's time consuming and wasteful steps of repeatedly melting, cooling and crushing a material to purify it.

In addition, applicants submits that the claimed invention is patentable over Oba because Oba does not teach or suggest crushing a solid precursor to facilitate further purification by reaction with an oxygen scavenger during a portion of the crystal growth cycle. Applicants respectfully submit that in this instance the Examiner is improperly using applicant's own teaching against him in view of Oba's failure to teach or suggest such a step.

Lastly, applicants submit that Oba teaches away from the present invention. By the fact that Oba resorts to repeated steps of melting and cutting away the top portion of the block of fluoride material, applicants submit that Oba is in fact teaching that one cannot sufficiently purify a fluoride material by use of oxygen scavengers alone. In contract, applicants do not teach removal of any fluoride material.

Therefore, in view of the foregoing pacts and arguments, applicants respectfully submit that claims 1 – 7, 9 – 13, 17, 20, 23-33, 37, 40, 44 – 52, 54, and 55 are patentable over Oba and that it is proper for the Examiner to withdraw the §103(a) rejection of these claims.

The Examiner has rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable for over Oba (6,238,479). Specifically, the Examiner states that it would be obvious to lower the cooling rate (to crucible movement of no greater than 1mm/hr as per claim 8).

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Amdt. Dated: April 28, 2004
Reply to Office Action of: March 5, 2004

Applicants traverse the rejection on the grounds that claim 8 is allowable for depending on an allowable claim 1.

Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Walter M. Douglas at 607-974-2431.

28 April 2004
Date

CERTIFICATE OF TRANSMISSION
UNDER 37 C.F.R. § 1.8

I hereby certify that this paper and any papers referred to herein are being transmitted by facsimile to the U.S. Patent and Trademark Office at 703-872-9306 on:

28 April 2004
Date

Walter M. Douglas 28 April 2004
Walter M. Douglas Date

Respectfully submitted,
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